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CLAIMS

1. A heat source comprising a mixture of combustible materials, characterized in that the materials comprise a low ignition temperature component with an ignition temperature in the range of 150 to 380°C and a combustion temperature in the range of 500 to 650°C; and a high ignition temperature component with an ignition temperature in the range of 500 to 900°C and a combustion temperature in the range of 700 to 1500°C.

2. The heat source of claim 1, which further comprises an intermediate ignition temperature component with an ignition temperature in the range of 340 to 600°C and a combustion temperature in the range of about 500 to 800°C.

3. A heat source composed of combustible materials characterized in that it comprises a mixture of metal carbide, metal nitride and metal.

4. The heat source of claim 2, wherein the intermediate ignition temperature component has an ignition temperature in the range of 450 to 550°C and a combustion temperature in the range of 600 to 700°C.

5. The heat source of claim 2, wherein the intermediate ignition temperature component has an ignition temperature in the range of 500 to 700°C and a combustion temperature in the range of 750 to 900°C.

6. The heat source of claim 2, 4 or 5 wherein the intermediate ignition temperature component is a commercial iron carbide or zirconium nitride or a combination thereof.

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7. The heat source of claim 1, 2, 4, 5 or 6 wherein the low ignition temperature component has an ignition temperature in the range of 200 to 300°C and a combustion temperature in the range of 450 to 550°C.

8. The heat source of any of claims 1, 2 and 4 to 7 wherein the low ignition temperature component is iron carbide or iron nitride or a combination thereof.

9. The heat source of claim 1, 2, 4, 5, 6, 7 or 8 wherein the high ignition temperature component is a commercial iron nitride, zirconium nitride or zirconium or a combination thereof.

10. The heat source of claim 1, 2 or any of claims 4 to 9 wherein the low ignition temperature component is iron carbide and the high ignition temperature component is iron nitride and commercial zirconium.

11. The heat source of claim 10, wherein the ratio by weight of iron carbide to iron nitride to zirconium is at least 1:1:1, preferably 10:5:1.

12. The heat source of claim 10 or 11 when dependent from claim 2, wherein the intermediate ignition temperature component is commercial iron carbide.

13. The heat source of claim 12 wherein the ratio by weight of iron carbide to commercial iron carbide to commercial iron nitride to commercial zirconium nitride is 1:1:1:1.

14. The heat source of any preceding claim which is adapted for use in a smoking article.

15. The heat source of claim 14 which is substantially cylindrical in shape (20) and has one or

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more fluid passages (22) therethrough.

16. The heat source of claim 15, wherein the fluid passages are formed as grooves around the circumference of the heat source (20).

17. The heat source of claim 15, wherein the fluid passages are formed in the shape of a multi-pointed star (22).

18. The heat source of any preceding claim wherein the heat source contains at least one burn additive, preferably selected from perchlorate, permanganate, chlorate, or nitrate.

19. The heat source of any preceding claim wherein the component particles have a size of up to 700 microns, preferably in the range of submicron size up to 300 microns.

20. The heat source of any preceding claim wherein the component particles have a B.E.T. surface area in the range of 1 to 400 m^2/g, preferably in the range of about 10 m^2/g to 200 m^2/g.

21. The heat source of any preceding claim having a void volume of 30% to 85%.

22. The heat source of any preceding claim having a pore size of submicron size up to 100 microns.

23. The heat source of any preceding claim having a density of 2.0 to 10.0 g/cc.

24. The heat source of any preceding claim additionally containing at least one catalyst.

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25. The heat source of claim 24, wherein the catalyst is iron oxide coated with gold.

26. The heat source of claim 24 or 25 wherein the catalyst comprises 0.5% to 10% gold/Fe_2O_3 by weight.

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